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CMDC Projects

Center for the Study of Mobile Devices and Communications

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Center for the Study of Mobile Devices and Communications

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Projects

MAST – Malicious Activity Simulation Tool

MAST – Malicious Activity Simulation Tool – is a DoT&E sponsored project which aims to support the conduct of network administrator security training on the very network that the administrator is supposed to manage. A key element of MAST is to use malware mimics to simulate malware behavior. Malware mimics look and behave like real malware except for the damage that real malware causes.

SPARCCS: Smartphone-Assisted Readiness, Command and Control System

SPARCCS - Smartphone Assisted Readiness, Command, and Control System - uses smartphones in conjunction with cloud computing to support distributed response to HA/DR (Humanitarian Assistance/Disaster Response) and military missions. SPARCCS enables real-time situational awareness among distributed teams of first responders while simultaneously ensuring that the command centers receive accurate, up-to-date reports from the field.

TwiddleNet: Smartphones as Personal Servers

TwiddleNet uses smartphones as personal servers to enable instant content capture and dissemination for first-responders. It supports the information sharing needs of first responders in the early stages of an emergency response operation. In TwiddleNet, content, once captured, is automatically tagged and disseminated using one of the several networking channels available in smartphones. TwiddleNet pays special attention to minimizing the equipment, network set-up time, and content capture and dissemination effort. It can support small operations of emergency responders in the first 48-72 hours of an emergency response by using handheld devices based infrastructure and scale up to handle hundred of users with more robust backend infrastructure.

Joint Mobile Network Operations - Joint Test and Evaluation

The goal of this project is to participate in the development of Tactics, Techniques and Procedures (TTPs) to improves forces' ability to access information and network services while crossing Service IP boundaries.

Mobile Alerts

People usually have multiple connections to the world which include cell phones, emails, chat programs, VoIP connections (e.g. Skype), and desk phones. Typically these connections do not talk to one another - e.g., if some has sent me an urgent email, my VoIP account will be ignorant of it. Limited amount of interoperability is available through proprietary services such as Blackberry, but it leaves many of the other connections a user uses out of the picture. This project aims to develop an architecture and system that integrates the following:

- Connections - cell phone, emails, chat, VoIP and desk phone.
- Alerts - normal, work-related, urgent, from important individuals or organizations

- Device profiles - types of cell phones, emails etc.
- User context - in meetings, in office, at home, watching movie etc.

Deployable Sensor Networks

In the last 2-3 years a number of theoretical and/or simulation studies have been made on the topic of object tracking using sensor networks. While these studies are useful, they are too general and provide little guidance for actual deployment of sensor networks for real-life location tracking of the enemy. We focus on supporting the needs of urban warfare where movement is usually restricted to the lanes and roads. We expect to produce prototypes of working systems and actual configurations of sensor motes to support enemy location tracking. Our suggested configurations will take into account climatic conditions, equipment limitations, layout of the urban environment, and type of enemy (personnel, vehicles etc).

Device-Aware Networks

A device-aware network matches the capability of the end-devices to the information delivered, thereby optimizing the network resource usage.

Personal Mobile Servers

A personal server is any small, light-weight, battery-powered mobile device with capability for data storage and some form of wireless connectivity means such as Bluetooth and 802.11. We are implementing a number of applications for first responders.

Capability Discovery and Resource Aggregation

Nemesis

Wireless Mobile Collaboration

Content Repurposing for Universal Access